REPORT RESUMES

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TRADE AND TECHNICAL TEACHER'S OPINIONS ON INSERVICE EDUCATION.
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DESCRIPTORS- *INSERVICE TEACHER EDUCATION, TEACHER ATTITUDES, ADMINISTRATOR ATTITUDES, *TRADE AND INDUSTRIAL EDUCATION, *TEACHER CHARACTERISTICS, ADMINISTRATOR CHARACTERISTICS, ACADEMIC ACHIEVEMENT, *TRADE AND INDUSTRIAL TEACHERS, TEACHER EXPERIENCE, *PROFESSIONAL EDUCATION, SURVEYS, CHECK LISTS, WORK EXPERIENCE, PENNSYLVANIA,

THREE HYPOTHESES CONCERNING THE INSERVICE EDUCATION ACTIVITIES OF TECHNICAL AND INDUSTRIAL TEACHERS AND SUPERVISORS IN PROFESSIONAL AND SUBJECT MATTER AREAS WERE TESTED--(1) TECHNICAL AND INDUSTRIAL TEACHERS DO PARTICIPATE IN INSERVICE EDUCATION, (2) INDIVIDUAL EXPERIENCES AND CHARACTERISTICS DO NOT INFLUENCE THE TEACHER'S OPINION OF SUCH EDUCATION, AND (3) TEACHERS AND SUPERVISORS BELIEVE THAT MORE SUBJECT MATTER INSERVICE EDUCATION IS NECESSARY. A LIST CONTAINING 22 PROFESSIONAL INSERVICE ACTIVITIES AND 22 SUBJECT MATTER ACTIVITIES WAS CHECKED BY 91 ADMINISTRATORS AND 285 TEACHERS AS TO THEIR PAST PARTICIPATION AND WILLINGNESS TO PARTICIPATE. SOME CONCLUSIONS WERE--(1) TEACHERS PARTICIPATED IN AS MUCH PROFESSIONAL AS SUBJECT MATTER INSERVICE EDUCATION, AND (2) EXPERIENCE AND PREPARATION HAD MORE EFFECT ON THEIR PREFERENCES IN PROFESSIONAL INSERVICE EDUCATION THAN IN SUBJECT MATTER INSERVICE EDUCATION. THE RECOMMENDATIONS WERE--(1) INSERVICE EDUCATION ACTIVITIES IN BOTH PROFESSIONAL AND SUBJECT MATTER CATEGORIES SHOULD BE INCREASED, (2) TEACHERS SHOULD BE INVOLVED IN CHOOSING, PLANNING, AND EXECUTING THEIR INSERVICE EDUCATION ACTIVITIES, AND (3) PLANNERS OF INSERVICE EDUCATION SHOULD BE COGNIZANT OF THE PERSONAL EXPERIENCES OF TEACHERS AND THEIR AFFECT ON THE PROGRAM. THE CHECKLIST AND STATISTICAL DATA ARE GIVEN IN THE APPENDIX. (EM)

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TRADE AND TECHNICAL TEACHER'S OPINIONS ON INSERVICE EDUCATION

by
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I. INTRODUCTION

It is accepted that the preparatory curriculums are effectively providing the necessary abilities and knowledges to permit a competent initiation of a teaching career. However, this is only the beginning of a career. The need for additional education to increase competencies and keep abreast of new knowledges is evidenced in raised standards for permanent licensing of teachers, by replacement of life-time licensing by shorter periods of licensing, and by financial rewarding for continued professional growth.

The particular needs of technical and industrial teachers are reflected in the preparatory curriculum. A curriculum which does not include any of the subject matter (trade or technology) they will teach and which does not mandate the pursuit of a baccalaureate degree. These particular needs undoubtedly affect the inservice education of these teachers also.

II. THE STUDY

A. The Problem

1. Identification of the Problem

The problem was concerned with the identification of the inservice education activities in which the technical and industrial teachers have participated and the opinions of these teachers concerning the inservice education activities in which they would prefer to participate. It was recognized that inservice education, similar to preparatory education, is composed of both professional and subject matter education. These two facets of inservice education were considered to be of equal importance and thus both were included.

A second aspect of the problem was aimed at determining whether the technical and industrial teachers are of the opinion that existing inservice education has been satisfying their needs as teachers.

2. Delimitations of the Problem

This study was confined to the technical and industrial teachers who possess a valid teaching certificate. Those teaching on a non-valid (emergency or interim) certificate cannot be expected to possess the professional or subject matter experiences, that would permit knowledgable responses to the opinionnaire.

A further delimitation restricted the study to technical and industrial teachers and supervisors employed in programs which are operating under the Federal-State Vocational Plan of the Commonwealth of Pennsylvania as full-time secondary preparatory programs. This is necessary because it is in these schools that the State certificiation regulations are enforced. Opinions were obtained from shop trade and laboratory technical teachers as well as from their supervisors. Other teachers in vocational schools were not included in the study because of the significant difference in their preparatory teacher education curriculum.

3. The Hypotheses

This study was founded on the following hypotheses:

a. Technical and industrial laboratory and shop teachers do participate in available professional and subject matter inservice education.

b. Individual experiences such as age, years of or recency of work experience, years of teaching experience, or amount of professional preparation have no influence on the teachers' opinion of inservice education.

c. The teachers and supervisors are of the opinion that more subject matter inservice education is necessary.

B. Background of the Problem

The original initiation of teacher education was the education of elementary teachers; however, recognition of the need for specialized professional preparation was not long restricted to the elementary teachers. Teachers of other grade levels were quickly judged by the same professional standards. Thus, when a relative newcomer to the educational world--vocational education--entered with Federal endorsement in 1917, teacher education was a concomitant part.

The first vocational education act makes the preparation of teachers a primary objective of the law itself, being written in its title. In addition, it requires the education of teachers in order that the state take advantage of its other provisions, thus giving emphasis to the tremendous importance of teacher education. However, the education of vocational laboratory and shop teachers is affected by many factors that cause the education of these teachers to be unique. These were recognized by Scott when he stated:

> The training of vocational shop teachers presents different problems than that of training teachers for elementary or secondary schools. The prospective shop teacher is of necessity a mature person, usually over 21 years of age, because he must have learned his trade before presenting himself for training, whereas the prospective teacher for elementary or secondary schools is usually a person, under 21 years of age, who has recently completed the secondary school and enters upon a four year training program. The training program is further affected by the fact that the prospective shop teacher enters the training program with the knowledge of the subject matter he is later to teach already acquired through his experience in industry, while

> prospective elementary or secondary teacher must be taught the subject matter after entering the training program. The program of preparation must be different for the two types of teachers.[1]

Due to the necessity of meeting the peculiar needs of teachers in this field as exemplified by their maturity, their full-time employment in industry, and their prior acquisition of knowledge of the subject matter, the traditional teacher preparation requiring years of regular attendance at an institution cannot be applied. Therefore, the majority of the states established certification requirements that provided for issuance of a valid teaching certificate upon the completion of certain professional and general education courses.

Technological progress in the industrial society of the United States created a demand for an especially trained type of worker in the 1950's. Education to provide this type of employee received Federal endorsement in 1958 with the passage of Public Law 85-864 (National Defense Education Act).

The billion dollars, though authorized for a dozen separate programs, have been authorized for a single purpose--that every young person from the day he first enters school, should have an opportunity to develop his gifts to the fullest. This is the emphasis that gives the Act its name, for it recognizes that in a free society the individual is the first line of defense.[2]

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[1] Charles P. Scott, Predicting Vocational Industrial Teaching Success, unpublished Ed. D. dissertation, University of Pittsburgh, 1942, p.5.

[2] Theodore E. Carlson, Guide to the National Defense Education Act of 1958, Washington D. C.: Government Printing Office, 1959, p. 1.

Title VIII of this law aims at alleviating the manpower shortage of technicians by encouraging area vocational-technical education programs. The urgency of this need is well illustrated by these prefacing remarks:

> The United States needs technicians in all areas of scientific development: electricity, electronics, atomic energy engineering, chemistry, instrumentation, tool design, aviation, and industrial planning. To not produce technicians fast enough means denying ourselves many of the fine advances of science; it means weakening our first line of defense--skilled manpower--at the very moment we should be making it as strong as we can.[1]

The urgency of need, the relatedness to vocational trade and industrial education, and the legal action considering this as an amendment to prior vocational education laws encouraged and promulgated the association of technical and industrial education. This association was further verified by the Vocational Education Act of 1963 (Public Law 88-210). Because of this association, the education of teachers for technicians was incorporated into the same pattern in the states as was in existence for teachers of tradesmen. Thus, the peculiarities mentioned above apply to both.

The adequacy of this teacher preparation, the competency of application, and the identification of content of teacher preparatory courses were established by Brantner,[1] Walsh,[2] and Landis [3] in studies of preparatory trade teacher education. The continued growth of teachers while actively pursuing their career is as vital to continued success in teaching as is their preparation before teaching. New and changing concepts in the function and responsibility of education demand continued formalized teacher learning. The importance of this education while engaged in teaching-inservice education is recognized by Durkee:

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[1] Ibid. p. 20.

> When leaders in school systems come to accept the fact that in-service education is concomitant with and necessary to better and better education, they will realize that all the people in school work need inservice education.[4]

The scope of preparatory teacher education is broad. The curriculums include general, professional, and subject courses. It is evident that the range of inservice education is equally expansive. This can be recognized by graduate-level institutional curriculums, by the National Defense Education Act of 1958, and by school system inservice programs. This expansiveness was asserted by Ashby:

> The third step in inservice education is to make it possible through a regular, carefully planned program to help teachers on-the-job keep up-to-date as to subject matter, teaching

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[1] S. T. Brantner, An Appraisal of Selected Courses of the Vocational Trade and Industrial Teacher Education Curriculum in Pennsylvania (unpublished Ed. D. dissertation, University of Pittsburgh, 1962)

[2] John P. Walsh, Qualifications, Preparation and Competency of Trade and Industrial Teachers (unpublished D. Ed. dissertation, George Washington University, 1958)

[3] Russell H. Landis, Teacher Education Programs for Professional Courses in Vocational Industrial Teacher Education (unpublished Ed. D. dissertation, Pennsylvania State University, 1948)

[4] Frank M. Durkee, "Organizing for Growth In Service," Educational Leadership, XVII (March 1960) p. 338.

> methods, and tools, knowledge of children and young people, our changing society, and to do their part in pushing back the frontiers of knowledge through research and experimentation.[1]

The importance of planning inservice education to meet particular conditions of the educational system and the needs of teachers is also of prime importance. Undoubtedly the uniqueness of the total vocational education complex creates some specific needs that can be met by a realistic inservice education plan. This was emphasized by Brandon:

> There is no blueprint for inservice organization. Probably the most satisfying inservice program is one planned on the expressed needs of individual teachers.[2]

C. Procedures

1. Planning

A detailed searching of the publications in the compiled bibliography was completed in order to identify specific inservice education activities. Those most frequently listed in these publications were then verified as valid activities by reference to research previously accomplished on inservice education. Interviews with shop and laboratory teachers, their supervisors, and teacher educators provided additional activities. This was considered to be an important asset due to the absence of previous research on inservice education with a comparable sample.

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[1] Lyle W. Ashby, "Today's Challenge to Inservice Education," Educational Leadership, XV (February 1958), p. 271.

[2] Bertha M. Brandon, "Inservice Education for Elementary Teachers," Educational Leadership, XVII (March 1960), p. 243.

The second phase of the planning was the consideration of the various groups through which an analysis of this kind could authentically be made. Two groups appeared peculiarly qualified to provide the necessary data. One group was composed of those who supervise the teachers - the administrators and supervisors. Those who actually see the teacher at work and who recognize the teachers' weaknesses and strengths should be able to translate these observations into realities of inservice education. A second qualification of this group becomes relevant when it is remembered that they exercise an important degree of control over the types of inservice education available to the teachers. A second group was composed of those who actively participate - the teachers themselves. This is the most vital group; they have been participating in the inservice education and must daily recognize that it is successful or unsuccessful in fostering needed professional competency.

2. The Instrument

It was decided that the best possible means of securing the essential data was by use of a check-list opinionnaire. This instrument, even though possessive of some limitations, permits a flexibility of distribution, coverage, time economy, and expense that could not be duplicated by interview or other more intimate contact.

A preliminary check-list was prepared of the professional and subject matter inservice education activities. Since each of these two types of education were considered of equal importance the number of activities under each were equal. It was submitted to teachers enrolled in the researcher's classes during the 1963 Summer Term for their criticism concerning comprehensiveness, clarity of expression, and recommended additions. Many valuable suggestions were received from these individuals.

The tentative revised check-list was then submitted to a randomly selected group of forty-four shop or laboratory teachers throughout Pennsylvania. They were asked to examine the list for clarity of expression, for validity of the content, for suggestions of additional activities, and for completion of the check-list according to included directions (see Appendix A). The high percentage of response (80%) provided endorsement of the pertinency of the study and their comments were considered most valuable in the finalization of the instrument.

The final check-list contained twenty-two professional inservice education activities, twenty-two trade or technical inservice education activities in Part I (Appendix B). Four vertical columns were used: two columns under Column A to determine whether the teachers and administrators had participated in the specified inservice education activities recently, and two columns under Column B to determine whether they would prefer to participate in these activities. Part II contains two questions which identified the opinions of both groups about the adequacy of the professional as well as the trade and technology inservice education (See Appendix B). Space was provided for their recommendations as to changes that should be affected. Part III was composed of personal characteristics that would provide data about the study population.

3. Collecting the Data

The names and school addresses of all the vocational-technical and industrial administrators, supervisors, laboratory, and shop teachers in the Commonwealth of Pennsylvania were obtained from the 1963 Annual Affidavits through the cooperation and courtesy of the Head Supervisor of Technical and Industrial Education for Pennsylvania. The opinionnaire mailing list included all of these persons. A transmittal letter (Appendix C) explaining the purpose of the opinionnaire was prepared.

The directions for marking the research instrument were presented on the first page. The check-lists, their accompanying transmittal letters, and a stamped return envelope were mailed during the week of October 21, 1963.

The distribution of check-lists according to the two types of respondents is shown in Table 1.

TABLE 1

NUMBER AND PERCENTAGE OF THE CHECK-LISTS RECEIVED

Group	Number Check-lists Mailed	Number Replies Received	Per Cent Replies Received
Administrators	121	91	75.2
Teachers	525	311	59.2
Totals	646	402	62.2

Twenty-six of the replies received from the teachers could not be used. The number that could not be used and the different reasons for not using are as follows: (2) the teacher was teaching on an emergency certificate; (10) the teacher was teaching on an interim standard certificate; and (14) the check-list was incomplete. The remaining 285 check-lists were tabulated. This final total included 91 from the administrators and 285 from the teachers.

4. Data Treatment

The datum from the individual check-lists was coded and punched into standard IBM cards for ease of analysis. The coding used permitted the datum from one check-list to be punched into one card. The more complex statistical programs were processed on a 7074 IBM computer using specific FORTRAN programs.

The objectivity of the data depended upon the validity and reliability of the check-list used, and upon the reliability of the groups of respondents in indicating their reactions to the items of the check-list.

Validity was obtained by (1) analyzing the related researchers for inservice education activities shown to be essential; (2) asking the teachers in a pilot study to check the selected activities on the basis of their intimate and expert knowledge of inservice education; (3) constructing the final check list from the inservice education activities verified by both these procedures. The assumption is that the persons best able to formulate opinions about inservice education are those that have to participate and utilize these services regularly, and those who supervise these persons; the validity of this study depended upon this premise.

The reliability of the check-list was established by correlating the administrators responses with those of the teachers. The Pearson Product Moment r[1] computed for these two groups was .783.

The determination of differences of opinions based on selected background characteristics was considered important to the study. This served to answer questions such as: Does the number of years of industrial wage earning experience affect the opinion of inservice education? Does the recency of this experience cause different opinions? Are opinions different on the basis of teaching experience, professional preparation, or class of the school district. It was thought that the significance of these relationships would be most meaningful and understandable if computed by use of the Significance of a Difference Between Two Percentages.[2] The results of this statistical treatment are discussed throughout the subsequent chapters.

D. Nature of the Sample Population

The vocational teacher and administrators represented in this study came from schools throughout the Commonwealth of Pennsylvania and all classes of school districts were represented.

Table 2, shows the frequency and percentage distribution of responses concerning the educational position of the respondent. It may be noted that replies were received from educators at all levels.

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[1] Allen L. Edwards, Statistical Methods for the Behavioral Sciences, (New York: Rinehart & Company Inc., 1958) p. 148.

[2] G. Milton Smith, A Simplified Guide to Statistics for Psychology and Education. (New York: Rinehart & Company Inc., 1958) p. 63.

TABLE 2

EDUCATIONAL POSITION HELD BY RESPONDENTS

			Position				
Group	No Response	Teacher	Director or Principal	Super-visor	Coord-inator	Other	Total
Teacher	14 4.91%	270 99.63%	0 0.00%	0 0.00%	1 0.37%	0 0.00%	285 100%
Administrators	4 4.40%	0 0.00%	53 60.92%	8 9.20%	18 20.69%	8 9.20%	90 100.0%

The teachers represented in this study teach a wide variety of subjects. Twenty-four different subjects were represented and the number of teachers in each subject area are shown in Table 3. Since several of the respondents listed two subjects, the total number of responses was greater than the number of teachers responding.

TABLE 3

SUBJECTS TAUGHT BY RESPONDENTS

Subject		Subject	
Machine Shop	52	Sheet Metal	5
Auto Shop and Auto Mechanics	43	Bricklaying Masonry	4
Electricity-Electronics	35	Commercial Art	4
Carpentry	24	Electrical Maintenance and Power	4
Mechanical Drafting	22	Plumbing and Heating	3
Cabinetmaking	14	Radio-TV	3
Printing-Graphic Arts	10	Foundry	2
Welding	7	Custom Upholstering	2
Auto Body	6	General Construction	1
Beauty Culture	6	Building Maintenace	1
Woodworking	5	Architectural Drafting	1
Electrical Construction	5	Photography	1
		Other	26

In response to an item on both questionnaires concerning number of years of teaching experience, the frequency and percentage distributions shown in Table 4, were obtained.

TABLE 4

YEARS OF TEACHING EXPERIENCE

Group	No Response	Number of Years 0-4	5-9	10-14	15-19	20-24	25 +
Teachers	18 6.32%	37 13.86%	71 26.59%	43 16.10%	43 16.10%	31 11.61%	42 15.73%
Administrators	5 5.49%	0 0.00%	6 6.98%	8 9.30%	12 13.95%	12 13.95%	48 55.48%

Based on Table 4, the median number of years of teaching experience of the teachers was 12.96 years. The median number of years of experience for the administrators, based on Table 4, was 25.89 years.

The response received from the teachers to Part III, item 4, of the questionnaire are shown in Table 5. This item deals with the kind or kinds of certificate held by the respondent. It should be noted that the number of persons who did not respond to this item is not listed, nor is the number of persons who listed a type of certificate which was not pertinent to this study.

TABLE 5

CERTIFICATES HELD BY TEACHERS

Kind of certificate	Number of responses
Permanent standard	164
Temporary standard	33
College permanent	31
Permanent standard and College permanent	10
College provisional	3
Permanent standard and College provisional	2
Temporary standard and College permanent	1

The same question concerning the kind of certificate held, was asked on the questionnaire sent to administrators. Their responses are shown in Table 6.

TABLE 6

CERTIFICATES HELD BY ADMINISTRATORS

Kind of Certificate	Number of Responses
College permanent	63
Permanent standard	13
Permanent standard and College permanent	4
College provisional	2
Permanent standard and college provisional	1

Table 7 shows the responses of both the teachers and administrators to a question concerning the age of the respondent. Based on Table 7 the median age for the teachers was 46.55 years, and the median age for the administrators was 54.48 years.

TABLE 7

AGE OF RESPONDENTS

Group	Years of Age						No Response
	25 or under	26-33	34-41	42-49	50-57	58 or over	
Teacher	0	24	63	75	65	44	14
	0.00%	8.86%	23.25%	27.68%	23.99%	16.24%	4.91%
Administrators	0	0	11	16	29	31	4
	0.00%	0.00%	12.64%	18.39%	33.33%	35.63%	4.40%

An analysis of the number of years of work experience the teachers and administrators have in their trade or technology is presented in Table 8. Computed on the basis of the information in Table 8, the median number of years of trade experience for teachers was 13.21 years, and for the administrators the median was 9.40 years.

TABLE 8

YEARS OF TRADE EXPERIENCE

Group	Number of Years						No Response
	3-4	5-6	7-8	9-10	11-12	13 or more	
Teachers	1 0.37%	7 2.59%	34 12.59%	35 12.96%	22 8.15%	171 63.33%	15 5.26%
Administrators	6 6.98%	7 8.14%	19 22.09%	15 17.44%	7 8.14%	32 37.21%	5 5.49%

The teachers and administrators in the sample population were asked to indicate how long it had been since they had worked at their trade as a wage earner. Table 9 shows the distribution of responses by both the teachers and administrators.

TABLE 9

YEARS SINCE LAST EMPLOYED IN TRADE

Number of years	Number Responding	
	Teachers	Administrators
Less than a year ago	101	7
1-5 years ago	73	19
6-10 years ago	40	18
11-20 years ago	29	19
Over 20 years ago	24	23

It may be noted that well over half of the teachers have worked at their trade within the last five years, while with the administrators half have worked at their trade within the past ten years.

Responses to Item 8, in Part III of the questionnaire indicate that the majority of the teachers and administrators completed the major part of their teacher certification coursework between January 1938 and August 31, 1959. Table 10 presents the complete distribution of responses to the item.

TABLE 10

DATE OF COMPLETION OF MAJOR PORTION OF CERTIFICATION COURSEWORK

Period	Teacher Responses	Administrator Responses
Prior to 1937	25	27
1938 to August 31, 1959	164	56
Since September 1, 1959	77	4

A study of the number of undergraduate credits completed by the teachers shows that 160 out of 267 have completed at least 61 credits, and 60 hold a Bachelor's Degree. Among the 86 administrators that replied to this item, 74 hold a Bachelors Degree, and all of the rest have completed at least 61 credits. Table 11 shows the complete distribution of responses to this item.

TABLE 11

UNDERGRADUATE CREDITS COMPLETED

Group	0-12	13-60	61-90	91-120	Bachelor's Degree	No Response
Teachers	5 1.87%	102 38.20%	71 26.59%	29 10.86%	60 22.47%	18 6.32%
Administrators	0 0.00%	0 0.00%	2 2.32%	10 11.63%	74 86.05%	5 5.49%

Item 10 in Part III of the questionnaire is concerned with the number of graduate credits completed by the respondent. Table 12 shows the complete distribution of responses made by both teachers and administrators.

TABLE 12

GRADUATE CREDITS COMPLETED

Credits and/or Degree	Teacher Responses	Administrator Responses
0 Credits	144	8
1-30 Credits	57	11
31-90 Credits	17	4
1-30 Credits and Master's Degree	2	0
Master's Degree	22	46
31-90 Credits and Master's Degree	4	11
Doctor's Degree	0	3

The teachers and administrators in the sample population represent all classes of school districts. Table 13 shows the distribution of responses for both groups to a question concerning the class of school district in which the respondent was employed.

TABLE 13

CLASS OF SCHOOL DISTRICT IN WHICH EMPLOYED

Group	1st Class	2nd Class	3rd Class	4th Class	No Response
Teachers	80 33.47%	97 40.50%	59 24.69%	3 1.26%	46 16.14%
Administrators	24 29.63%	22 27.16%	32 39.51%	3 3.70%	10 10.99%

III ANALYSIS OF PRESENT PRACTICES

A. Introduction

The first twenty-two items in Part I of the questionnaire were concerned with aspects of professional inservice education while the second series of twenty-two items with aspects of trade or technical inservice education. For the purpose of clarity in making comparisons and presenting information in tables, the questionnaire items concerning professional inservice education were numbered from one to twenty-two, and those questionnaire items concerning trade or technical inservice education were numbered from twenty-three to forty-four.

Teachers were asked to make two responses to each item in Part I of the questionnaire. In Column A, they were asked to indicate if they had participated in each activity at least once within the last three years, and in Column B they were asked to indicate if they would participate in each activity if it was available.

Administrators were asked to indicate in Column A whether they had used each item as an inservice activity for the teachers they supervise and were given the same three year time limit as the teachers. In Column B they were asked to indicate whether they would use each activity.

B. Analysis of Practices Used

Table 14 presents the rankings of the ten most popular, and the ten least popular, items as selected in Column A by both the teachers and administrators. A complete ranking of all items may be found in Appendix D.

TABLE 14

RANKINGS OF RESPONSES IN PRESENT PRACTICES

Teachers				Administrators		
Item No.	f	%	Rank	Item No.	f	%
37	275	96.49	1	37	88	96.71
36	272	95.44	2	19	87	95.60
19	270	94.74	3	36	87	95.60
33	269	94.71	4	35	86	94.51
35	269	94.38	5	9	85	93.41
34	268	94.04	6	10	85	93.41
7	264	92.63	7	28	85	93.41
20	258	90.52	8	34	84	92.13
8	256	90.14	9	8	83	91.21
9	247	86.97	10	11	83	91.21
6	70	24.56	35	30	41	45.05
22	69	24.21	36	44	40	43.96
31	55	19.30	37	5	39	42.86
25	52	18.24	38	22	39	42.86
26	48	16.84	39	43	33	36.26
43	48	16.84	40	25	32	35.16
5	38	13.33	41	26	31	34.07
21	38	13.33	42	21	27	29.67
4	37	12.98	43	40	19	20.88
40	23	8.08	44	31	10	10.99

It may be noted that Table 1 shows that there was no clear cut preference for either of the two forms of inservice education. Techniques of both professional, and trade or technical inservice education were equally represented among the top ten rankings of both the teachers and administrators.

It is interesting to note in Table 14 that while the correlation of rankings of replies by teachers and administrators was high, there was a greater unanimity of opinion among the administrators. This fact was especially evident in the lower ten rankings. Table 14 shows that the lower ten rankings among teachers ranged from 8.07% to 24.56%, while among the administrators only the two lowest rankings are below 24.56% and the lower ten ranged from 10.99% to 45.05%.

Table 14 also showed that for teachers the ten top ranked items received more than 85% replies, and the top nine items received over 90%. The rankings of the top ten replies by administrators showed that all received over 90% replies.

In reading the top ten ranked items for both teachers and administrators and comparing them with the items ranked in the last ten several factors become evident. Those meetings which are held at the school where the respondent is employed are in the top ten in the rankings, while attendance at meetings which are greater in scope such as state and national meetings are rated in the lowest ten. It is also evident that reading professional and technical publications is preferred much more than writing articles for these publications or participating in research. Here again the former type of activity ranks in the top ten while the latter activities fall in the lower ten rankings.

It is readily evident on the basis of the replies received that the technical and industrial teachers do participate in the inservice education activities. Therefore acceptance of the hypothesis that they do participate is mandated.

C. Analysis By Population Characterisitcs

The following is a presentation of significant differences of opinions on the forty-four inservice education techniques based on selected personal characteristics of the teacher respondents. The information presented was obtained in the following manner. Each of the characteristics in Part III of the questionnaire were used as a sort of factor with the exception of items 1, 2, and 4, which deal with the respondents' educational position, the subject he taught, and the type of certificate he held. Responses to each sort factor were arranged in groups according to the response made to the factor. The final step was to compare the responses made by each group to the forty-four inservice education techniques, with the response of all other groups in that sort factor by means of a test of significant differences between two percentages.

The first sort factor analyzed in this manner was that of years of teaching experience. It is known that the teacher learns as he teaches. In view of this it would seem to be important to look at the responses to the forty-four inservice education techniques in light of the years of teaching experience the respondents had. The replies were sorted into groups according to replies to this factor in Part III, of the questionnaire. Tables 15 and 16, show those items on which significant differences of opinion were found to exist between groups. Table 15 shows items concerned with professional inservice education, while Table 16 shows items concerned with trade or technical inservice education. It should also be noted that these two tables, as do all tables in this section, present significant differences based on the percentage of yes responses in Column A, which was concerned with present practices.

The groups shown in Tables 15 and 16 were set up as follows. Group A, 0-4 years of teaching experience; Group B, 5-9 years; Group

C, 10-14 years; Group D, 15-19 years; Group E, 20-24 years; Group F, 25 or more years. The numbers shown under each group are item numbers, and indicate that a significant difference was found to exist between the group indicated by the column and the group indicated by the row in which the item number is located. An asterick after the item number indicates significance at the .01 level, as opposed to the .05 level for which the item number appears without an asterick. Throughout this section the groups will change as each new sort factor is introducted, but the rest of the format as used in Tables 15 and 16 will remain the same.

An examination of Table 15 reveals that twenty-one of the forty-two significant differences shown were between the following groups; A and E, A and F, B and E, and B and F. Since these groups were widely separated in years of teaching experience it is evident that this factor did influence inservice education activities. It should be noted that the distribution of significant differences in Table 16 differed from that found in Table 15 and that there were fewer significant differences in Table 16 than there were in Table 15. This indicates that years of teaching experience had more effect on professional inservice education than on trade or technical inservice education.

TABLE 15

SIGNIFICANT DIFFERENCES ON PROFESSIONAL INSERVICE EDUCATION BASED ON YEARS OF TEACHING EXPERIENCE

	(0-4)	(5-9)	(10-14)	(15-19)	(20-24)	(25 +)
	A	B	C	D	E	F
B	7					
C		7*				
D	1,4,14, 15,17	1,14	21			
E	4*,8,9*, 10,15	4,7,8,9, 11,12,15	4*,8,9, 21	9,11		
F	4,10,13*, 14*,15*, 17	13*,14*, 15*				

TABLE 16

SIGNIFICANT DIFFERENCES ON TRADE OR TECHNICAL INSERVICE EDUCATION BASED ON YEARS OF TEACHING EXPERIENCE

	(0-4)	(5-9)	(10-14)	(15-19)	(20-24)	(25 +)
	A	B	C	D	E	F
B						
C	31	31,32				
D	43		31*,32			
E	27*	27*		27		
F	27,29	43	43	41,43*		

Tables 17 and 18 used the age of the respondent as a sort factor. The age of the respondent was important because it may have affected the response to the questionnaire. Since learning is a continuous process from birth to death, it might be important to compare the replies of the older man with those of the younger man. The groups shown in these tables were set up as follows. Group A, 26-33 years of age; Group B, 34-41 years of age; Group C, 42-49 years of age; Group D, 50-57 years of age; and Group E, 58 years of age or over. These tables present those items on which a significant difference of opinion was found to exist between two or more groups.

An examination of Table 17 shows that twenty-three of the thirty-six significant differences shown fall in the four cells representing groups A and D, A and E, B and D, and B and E. This indicates that extreme of age produced differences comparable to those produced by extremes of years of teaching experience.

In Table 18, it is interesting to note that the distribution is more uniform, with the only cluster appearing between groups C and D. Once again it may be noted that there are fewer significant differences on trade or technical inservice education than on professional inservice education.

TABLE 17
SIGNIFICANT DIFFERENCES ON PROFESSIONAL INSERVICE EDUCATION BASED ON THE AGE OF THE RESPONDENT

	(26-33) A	(34-41) B	(42-49) C	(50-57) D	(58 +) E
B	5,17,21*, 22				
C	14,16,22	8,14*			
D	13,14*, 15*,16	4*,5,6,8*, 9,14*,15	4		
E	13*,14*, 15*,16*, 22	8,9,13, 14*,15*	13,15*,19		

TABLE 18
SIGNIFICANT DIFFERENCES ON TRADE OR TECHNICAL INSERVICE EDUCATION BASED ON THE AGE OF THE RESPONDENT

	(26-33) A	(34-41) B	(42-49) C	(50-56) D	(58 +) E
B					
C	38				
D	38	28	28*,29,31, 43,44*		
E	38	27,30	27,43	28	

Tables 19 and 20 were based on the number of years of experience the respondent had in his trade or technology. This sort factor was important because a teacher with many years of experience may not feel the need for trade or technical inservice education, as much as a teacher with fewer years of trade experience. The groups shown in these four tables were set up as follows. Group A, 3-4 years of experience; Group B, 5-6 years of experience; Group C, 7-8 years of experience; Group D, 9-10 years of experience; Group E, 11-12 years of experience; and Group F, 13 or more years of trade experience.

Upon examination of Table 19 it may be readily observed that the total number of significant differences is less than on tables based on previous sort factors. This may indicate that work experience did not foster as many differences on professional inservice education as teaching experience or age. However, it is evident that this factor was influencial in fostering a greater number of differences on trade or technical inservice education than were the factors of teaching experience or age.

TABLE 19

SIGNIFICANT DIFFERENCES
ON PROFESSIONAL INSERVICE EDUCATION
BASED ON YEARS OF EXPERIENCE IN TRADE OR TECHNOLOGY

	(3-4) A	(5-6) B	(7-8) C	(9-10) D	(11-12) E	(13 +) F
B	10*					
C	10,11	21,22				
D	22	10,22				
E			16	3		
F		21	10,11	3	4	

TABLE 20

SIGNIFICANT DIFFERENCES ON TRADE OR TECHNICAL INSERVICE EDUCATION BASED ON YEARS OF EXPERIENCE IN TRADE OR TECHNOLOGY

	(3-4) A	(5-6) B	(7-8) C	(9-10) D	(11-12) E	(13 +) F
B						
C	24	40*				
D		40	24			
E	24		40	24,25		
F	23,24,38	40*,41*	30,34*	23*,24*, 25		

Since our industrial technology is advancing at such a rapid rate, the number of years which have passed since a respondent has been employed at his trade may well affect his opinion concerning present practices in inservice education. For this reason respondents were asked in item 7, in Part III, of the questionnaire to indicate how long it had been since he last worked at his trade or technology. This item was then used as sort factor in the analysis of replies to the forty-four inservice education techniques.

Tables 21 and 22 present the items on which significant differences of opinion were found to exist between groups with regard to replies on present practices. The groups shown in these tables were set up as follows. Group A, less than one year since last employed at trade as a wage earner; Group B, 1-5 years since employed; Group C, 6-10 years since employed; Group D, 11-20 years since employed; and Group E over 20 years since employed.

An examination of Table 21 revealed that once again the majority of the significant differences occurred between groups representing extreme differences in the number of years which have passed since those in the group were last employed at their trade. It was also true that once again there were more significant differences of practice on items of professional inservice education than on items concerned with trade or technical inservice education. It is evident that the greater the variation between years since last employed the greater the significant differences, particularly in professional inservice education.

TABLE 21

SIGNIFICANT DIFFERENCES
ON PROFESSIONAL INSERVICE EDUCATION
BASED ON YEARS SINCE LAST EMPLOYED AT TRADE

	(0-1) A	(1-5) B	(6-10) C	(11-20) D	(20 +) E
B					
C	16				
D	5*,14,16, 21*	14,21	21		
E	5,13*,14, 15*,16	6,13*,14, 15*,19,22	13,15,22	13,15*,21*	

TABLE 22

SIGNIFICANT DIFFERENCES ON TRADE OR TECHNICAL INSERVICE EDUCATION BASED ON YEARS SINCE LAST EMPLOYED AT TRADE

	(0-1) A	(1-5) B	(6-10) C	(11-20) D	(20 +) E
B	41				
C	30	28,30*			
D	30,39,44	30*,34,40			
E		30*		39,42	

Requirements for certification as a vocational teacher in the Commonwealth of Pennsylvania have undergone two major revisions since they were first set up. The first revision became effective on January 1, 1938, while the second became effective on September 1, 1959. Because of this teacher training can be divided into three distinct periods. This was done in this study and the period in which the respondent completed the major part of his certification course work was used as a sort factor in the analysis of significant differences on inservice education. Since the period in which the respondent completed the major portion of his course work determines the number of credits he must have to meet certification requirements, it was felt that this might have an effect on his replies.

Tables 23 and 24 present those items on which a significant difference was found to exist between two or more groups. The groups for these tables were set up as follows. Group A, major portion of course work completed prior to 1937; Group B, 1938 to August 31, 1959; and Group C, since September 1, 1959.

An analysis of the data presented in Tables 23 and 24 revealed that there may be a universally recognized need for inservice education on the part of all teachers. This is evidenced by the small number of significant differences shown in these two tables.

TABLE 23

SIGNIFICANT DIFFERENCES
ON PROFESSIONAL INSERVICE EDUCATION
BASED ON PERIOD IN WHICH MAJOR PART OF
CERTIFICATION COURSEWORK WAS COMPLETED

	Prior to 1938 A	1938-1959 B	1959 to Present C
B			
C	13,14*,15*	15*	

TABLE 24

SIGNIFICANT DIFFERENCES
ON TRADE OR TECHNICAL INSERVICE EDUCATION
BASED ON PERIOD IN WHICH MAJOR PART OF
CERTIFICATION COURSEWORK WAS COMPLETED

	Prior to 1938 A	1938-1959 B	1959 to Present C
B	42		
C	38,40,42		

The next sort factor to be analyzed for significant differences was based on the number of undergraduate credits completed by the respondent. This factor was used since the number of credits completed by the respondent may affect his participation in inservice education.

Tables 25 and 26 present those items in which significant differences were found to exist between two or more groups when replies concerning present practices were analyzed in light of this sort factor. The groups used in these tables were set up as follows. Group A, 0-12 credits completed; Group B, 13-60 credits completed; Group C, 61-90 credits completed; Group D, 91-120 credits completed and Group E, Bachelor's Degree.

An analysis of the data presented in these two tables indicated that participation in inservice education may be affected by the amount of undergraduate preparation. This is evidenced by the fact that once again the majority of the significant differences appeared in the first two groups and the latter two groups.

TABLE 25

SIGNIFICANT DIFFERENCES
ON PROFESSIONAL INSERVICE EDUCATION
BASED ON NUMBER OF UNDERGRADUATE CREDITS COMPLETED

	(0-12) A	(13-60) B	(61-90) C	(91-120) D	(BS) E
B	3*,5*,13, 17*,18*				
C	8	3*,17*,18*, 21			
D	8,17,18	17,18			
E	3,13,16, 17	17,18*	3,8,11, 16*	8,16,18	

TABLE 26

SIGNIFICANT DIFFERENCES
ON TRADE OR TECHNICAL INSERVICE EDUCATION
BASED ON NUMBER OF UNDERGRADUATE CREDITS COMPLETED

	(0-12) A	(13-60) B	(61-90) C	(91-120) D	(BS) E
B	23,28,29, 32				
C		30*			
D	28*,29*	30	28,29*		
E	28*,29*	30	29		

The final sort factor on which replies on present practices were analyzed is based on the class of school district in which the respondent is employed. This sort factor was used in order to determine if factors peculiar to a given class of school district affected the opinion of the teachers in that school district regarding inservice education. Tables 27 and 28 present the items on which a significant difference was found to exist between two or more groups. The groups used in these tables were set up as follows. Group A, 1st class school district; Group B, 2nd class school district; Group C, 3rd class school district and Group D, 4th class school district.

An examination of these two tables revealed that there seems to be quite a difference of opinion regarding inservice education between employees of 1st class school districts, and those in other classes. This is evidenced by the fact that well over half of the significant differences appeared in the Group A of both tables. It is also interesting to note that once again there was a greater divergence of opinion on professional inservice education than on trade or technical education.

TABLE 27

SIGNIFICANT DIFFERENCES
ON PROFESSIONAL INSERVICE EDUCATION
BASED ON CLASS OF SCHOOL DISTRICT

	(1st) A	(2nd) B	(3rd) C	(4th) D
B	1,3*,6*,8*,10 11,12*,13,16, 18*			
C	2,3*,8*,9*, 12*,21	6		
D	6,9*	18,21		

TABLE 28

SIGNIFICANT DIFFERENCES
ON TRADE OR TECHNICAL INSERVICE EDUCATION
BASED ON CLASS OF SCHOOL DISTRICT

	(1st) A	(2nd) B	(3rd) C	(4th) D
B	35,42			
C	30,39,40*, 43*,44*	40,42,44*		
D				

Since some of the respondents have gone beyond the Bachelor's Degree, the number of graduate credits completed by the respondent was also used as a sort factor in the analysis of replies. Tables 29 and 30 present the items on which significant differences between groups were found to exist in replies. The groups used in these four tables were set up as follows. Group A, 0 graduate credits; Group B, 1-30 graduate credits, and Group C, 31-90 graduate credits completed.

An examination of Tables 29 and 30 shows that once again there were more significant differences of opinion on items of professional inservice education than there were on trade or technical inservice education items. This may be due to the fact that people working on graduate credits may spend less time on subject matter education while concentrating on professional education.

TABLE 29

SIGNIFICANT DIFFERENCES
ON PROFESSIONAL INSERVICE EDUCATION
BASED ON NUMBER OF GRADUATE CREDITS COMPLETED

	(0) A	(1-30) B	(31-90) C
B	1*,2,4,5*,6		
C	1*,4,5*,13	14*,16*	

TABLE 30

SIGNIFICANT DIFFERENCES
ON TRADE OR TECHNICAL INSERVICE EDUCATION
BASED ON NUMBER OF GRADUATE CREDITS COMPLETED

	(0) A	(1-30) B	(31-90) C
B	36		
C	41	31,41	

It was obvious that individual experiences of the population did influence the inservice education in which a teacher participated. All of the sort factors, except the time of completion of coursework, were instrumental in emphasizing these characteristics. The differences were more pronounced in professional than in trade or technical inservice education.

IV. ANALYSIS OF PREFERRED PRACTICES

A. Introduction

The first twenty-two items in Part I of the questionnaire were concerned with aspects of professional inservice education while the second series of twenty-two items with aspects of trade or technical inservice education. For the purpose of clarity in making comparisons and presenting the data in tables, the questionnaire items concerning professional inservice education were numbered from one to twenty-two, and those items pertaining to trade or technical inservice education were numbered from twenty-three to forty-four.

Teachers were asked to make two responses to each item in Part I of the questionnaire. In Column A whether or not they had participated in each activity at least once within the last three years; in Column B whether or not they would participate in each activity if it was available.

Administrators were asked to indicate in Column A whether they had used each item as an inservice activity for the teachers they supervise within the same three year time limit. They were asked to indicate whether they would use each activity in Column B.

B. Analysis of Preferences

Table 31 presents the rankings of the ten most popular and the ten least popular items as selected in Column B, by both teachers and administrators. A complete ranking of all items may be found in Appendix E.

TABLE 31

RANKINGS OF RESPONSES IN PREFERRED PRACTICES

Teachers				Administrators		
Item No.	f	%	Rank	Item No.	f	%
2	213	74.74	1	22	68	74.73
39	202	70.88	2	5	67	73.63
25	200	70.18	3	39	67	73.63
26	199	69.82	4	26	66	72.53
5	193	67.72	5	43	66	72.53
41	193	67.72	6	2	64	70.33
42	193	67.72	7	41	64	70.33
27	188	65.96	8	27	63	69.23
1	186	65.26	9	6	62	68.13
10	181	63.51	10	11	62	68.13
34	148	51.93	35	14	55	60.44
20	144	50.53	36	15	55	60.44
13	138	48.42	37	18	55	60.44
30	137	48.07	38	34	55	60.44
14	133	46.67	39	20	54	59.34
16	130	45.61	40	1	52	57.14
40	107	37.54	41	13	52	57.14
21	105	36.84	42	30	48	52.75
44	48	16.90	43	31	26	28.57
31	45	15.79	44	44	25	27.47

An examination of Table 31 reveals that, as was the case with responses regarding present practices, there was no clear cut preference for either of the two forms of inservice education. This was evidenced by the fact that techniques of both professional, and trade or technical inservice education were equally represented among the top ten responses of both teachers and administrators.

In making a comparison between Table 31 and Table 14 on page 20 there are several interesting factors to be noted. The first of these was in regard to the rankings of teachers replies. It may be noted that when the two tables were compared that none of the items ranked in the top ten in Table 31, showing preferred practices appeared in the top ten on Table 14 showing present practices. In making the same comparison using administrator replies, only item 11, concerning the study and evaluation of curriculum materials was ranked in the top ten in both present and preferred practices.

In comparing the top ten preferred practices with the lower ten present practices it was evident that teachers are not participating in items 5, 25, and 26, but they would prefer to do so. Item 5 pertains to attendance at interstate professional conventions, while items 25 and 26 pertain to attendance at state, interstate, and national trade or technology conventions. The administrators have indicated that they would like their teachers to participate in items 5 and 26 which were previously identified, and in item 43, which would have them teach inplant classes in their trade or technology.

In examining Table 31, it is interesting to note that item 1, which pertains to observation in other classes in the school, was ranked ninth by the teachers, but among administrators this item was ranked fortieth.

Based on these observations there seems to be some evidence that inservice education programs need to be restructured in order to better meet the needs as recognized by both teachers and administrators.

There was definite evidence that both administrator and teachers are of the opinion that the inservice education activities need to be increased. This could be noted in the larger frequencies in the rankings from twenty-two to forty-four, and in the larger percentages of responses in these same rankings by the teacher respondents. However, there was no evidence that this opinion applies more prevalently to trade or technical than to professional inservice education. Nevertheless this is sufficient proof to justify acceptance of the hypothesis that both teachers and supervisors feel that more subject matter inservice education is necessary.

C. Analysis by Population Characteristics

Teacher responses in Column B, concerning preferred practices in inservice education were analyzed for significant differences of opinion in the same manner as the responses concerning present practices. The technique of analysis by means of a test of significant difference between two percentages was used, and the sort factors used were the same as those used in the analysis of present practices. The tables used in this chapter also follow the same format as those used in the previous chapter.

The first sort factor to be analyzed in this manner is that of years of teaching experience. Tables 32 and 33 present the items on which a significant difference of opinion was found to exist between groups, based on this factor. Group A, 0-4 years of teaching experience; Group B, 5-9 years; Group C, 10-14 years; Group D, 15-19 years; Group E, 20-24 years; Group F, 25 or more years. The numbers shown under each group are item numbers, and indicate that a significant difference was found to exist between the group in the column and the group in the row in which the item number is located. An asterick after the item number indicates significance at the .01 level, as opposed to the .05 level for which the item number appears without an asterick.

In examining these tables it is interesting to note that almost all of the significant differences were between groups A and F, B and F, C and F, and D and F, which suggest that extremes in difference of years of teaching experience. Once again, as was the case with this and several other sort factors on preferred practices, the number of significant differences on professional items were greater than on trade or technical items. This may be due to the fact that vocational teachers are required to have a broad background in their trade or technology in order to meet certification requirements. Because of this more of the inservice education activities are professional rather than trade or technical, and thus there are more varied opinions on professional inservice education.

TABLE 32

SIGNIFICANT DIFFERENCES
ON PROFESSIONAL INSERVICE EDUCATION
BASED ON YEARS OF TEACHING EXPERIENCE

	(0-4) A	(5-9) B	(10-14) C	(15-19) D	(20-24) E	(25 +) F
B						
C	3					
D		18				
E	16	16*,22*				
F	13*,14*, 15*,16*, 18,22	3,7,13*, 14*,15*, 16*,21, 22*	3*,13*, 14,15*, 16*,18*, 21,22*	3,13*, 14,15*, 16,18*, 22*	13*	

TABLE 33

SIGNIFICANT DIFFERENCES ON TRADE OR TECHNICAL INSERVICE EDUCATION BASED ON YEARS OF TEACHING EXPERIENCE

	(0-4) A	(5-9) B	(10-14) C	(15-19) D	(20-24) E	(25 +) F
B						
C						
D			30			
E						
F	30,39,41	30,32,39, 40,41,42, 43*	30*,32, 40,43*	42		

Tables 34 and 35 use the age of the respondent as a sort factor. As was the case with present practices this sort factor is related to years of teaching experience since man is continually learning as he grows older and gains experience.

These two tables show the items on which the percentage of responses on preferred practices for one or more groups was significantly different from other groups. An examination of these two tables reveals a rather odd distribution of significant differences. In this case the majority of the significant differences occurred between the middle groups as opposed to the extreme groups as had previously been the case. It should also be noted that once again there were more differences of opinion on professional items than on trade or technical items.

TABLE 34

SIGNIFICANT DIFFERENCES ON PROFESSIONAL INSERVICE EDUCATION BASED ON AGE OF RESPONDENT

	(26-33) A	(34-41) B	(42-49) C	(50-57) D	(58 +) E
B	1				
C	3	6*,16			
D	1	16*,22	16		
E	16*,22	13*,14*, 15*,16*, 21*,22*	3,6*,13*, 15*,16*, 21,22*	13*,15,16	

TABLE 35

SIGNIFICANT DIFFERENCES ON TRADE OR TECHNICAL INSERVICE EDUCATION BASED ON AGE OF RESPONDENT

	(26-33) A	(34-41) B	(42-49) C	(50-57) D	(58 +) E
B					
C	29	43			
D		30*,40,41	41		
E		30*,40*, 43*,44	30,42*,43	43	

The number of years of experience a respondent had in his trade or technology may affect his opinion regarding his preference concerning inservice education as much as his opinion concerning present practices. As a result of this, replies were sorted into groups and were analyzed on the basis of this factor.

Tables 36 and 37, present the items on which a significant difference of opinion were found to exist between two or more groups on the basis of this factor. An examination of these tables shows that there were fewer significant differences based on this sort factor than had been found on previous factors. With regard to professional inservice education there was some clustering of differences of opinion between groups where the difference in years of experience was greater. The small number of significant differences of opinion regarding trade or technical inservice education may be an indication that work experience does foster as many differences of opinion as the age of the respondent and the number of years of teaching experience he has had.

TABLE 36

SIGNIFICANT DIFFERENCES
ON PROFESSIONAL INSERVICE EDUCATION
BASED ON YEARS OF EXPERIENCE IN TRADE OR TECHNOLOGY

	(3-4) A	(5-6) B	(7-8) C	(9-10) D	(11-12) E	(13 +) F
B						
C	6	9,11				
D	1*,5,15	7*,9				
E	1*,5*,6*, 14,15	5,7	5			
F	1*,6, 15	7,9,12		16	5	

TABLE 37

SIGNIFICANT DIFFERENCES ON TRADE OR TECHNICAL INSERVICE EDUCATION BASED ON YEARS OF EXPERIENCE IN TRADE OR TECHNOLOGY

	(3-4) A	(5-6) B	(7-8) C	(9-10) D	(11-12) E	(13 ≠) F
B						
C		32				
D		43	32			
E		27	43	41		
F		27	34	34		

The opinion of a respondent regarding inservice education may well be influenced by the number of years that have passed since he was last employed at his trade or technology, particularly with regard to preferred practices in trade or technology inservice education. Table 38 presents those items of professional inservice education on which a significant difference of opinion was found to exist using this sort factor. Table 39 presents the same information on replies to items of trade or technology inservice education items.

An examination of these two tables reveals a distribution similar to that found on other tables, but it should be noted that the number of differences on trade or technical items was greater than on professional items. This indicates that this sort factor is important in the establishment of opinions concerning preferred practices in trade or technical inservice education.

TABLE 38

SIGNIFICANT DIFFERENCES ON PROFESSIONAL INSERVICE EDUCATION BASED ON YEARS SINCE LAST EMPLOYED AT TRADE

	(1-5) A	(6-10) B	(11-15) C	(16-20) D	(20 +) E
B	5*,6*,17, 18				
C	4,5,6*	13,20			
D	5*,6*		2		
E	5*,6*	13*	2		

TABLE 39

SIGNIFICANT DIFFERENCES ON TRADE OR TECHNICAL INSERVICE EDUCATION BASED ON YEARS SINCE LAST EMPLOYED AT TRADE

	(1-5) A	(6-10) B	(11-15) C	(16-20) D	(20 +) E
B	26,28*, 29*,35*				
C	28,35	30			
D	26*,35	30,34	26		
E	26	30,41,43*	42,43	43	

Tables 40 and 41 present those items on which a significant difference was found to exist between two or more groups using the period in which the respondent completed the major portion of his certification coursework as a sort factor.

An examination of these tables revealed that most of the significant differences fall between group A and the other two groups. This may be an indication that those who who completed the major portion of their certification prior to 1938 feel more of a need for inservice education than those certificated at a later date.

TABLE 40

SIGNIFICANT DIFFERENCES ON PROFESSIONAL INSERVICE EDUCATION BASED ON PERIOD IN WHICH MAJOR PART OF CERTIFICATION COURSEWORK WAS COMPLETED

	(Prior to 1938) A	(1938-1959) B	(1959 to Present) C
B	13*,15*,22*		
C	13*,14,15*,16, 22*		

TABLE 41

SIGNIFICANT DIFFERENCES ON TRADE OR TECHNICAL INSERVICE EDUCATION BASED ON PERIOD IN WHICH MAJOR PART OF CERTIFICATION COURSEWORK WAS COMPLETED

	(Prior to 1938) A	(1938-1959) B	(1959 to Present) C
B	30, 32*,35*,41		
C	41,42*,43	29,42	

The background of undergraduate courses a respondent had completed may influence his opinion concerning preferred practices in inservice education. For this reason the percentage of responses to determine if significant differences of opinion existed between two or more groups using the number of undergraduate credits completed was used as a sort factor. Tables 42 and 43 present the data gathered in this manner.

It should be noted that very few items show a significant difference between groups which is an indication that there is little difference of opinion on preferred practices.

TABLE 42

SIGNIFICANT DIFFERENCES
ON PROFESSIONAL INSERVICE EDUCATION
BASED ON NUMBER OF UNDERGRADUATE CREDITS COMPLETED

	(0-12) A	(13-60) B	(61-90) C	(91-120) D	(BS degree) E
B					
C					
D	12,13	1,13	13		
E	17			13,15,22	

TABLE 43

SIGNIFICANT DIFFERENCES ON TRADE OR TECHNICAL INSERVICE EDUCATION BASED ON NUMBER OF UNDERGRADUATE CREDITS COMPLETED

	(0-12) A	(13-60) B	(61-90) C	(91-120) D	(BS degree) E
B	42				
C	40*,43				
D	25,34,40		25,34		
E				34	

Tables 44 and 45 present those items on which a significant difference was found to exist between two or more groups using the number of graduate credits completed as a sort factor. This sort factor was used in order to determine if graduate credits completed by the respondent would influence his opinion on preferred practices of inservice education

An examination of these two tables shows only a few significant differences which indicates that the number of graduate credits completed by a respondent had very little influence on his opinion on these matters.

TABLE 44

SIGNIFICANT DIFFERENCES
ON PROFESSIONAL INSERVICE EDUCATION
BASED ON NUMBER OF GRADUATE CREDITS COMPLETED

	(0 credits) A	(1-30 credits) B	(31-90 credits) C
B			
C		2,9*	

TABLE 45

SIGNIFICANT DIFFERENCES
ON TRADE OR TECHNICAL INSERVICE EDUCATION
BASED ON NUMBER OF GRADUATE CREDITS COMPLETED

	(0 credits) A	(1-30 credits) B	(31-90 credits) C
B	31		
C	30,41*	30*,38*,41	

The final sort factor to be used in the analysis of responses regarding preferred practices in inservice education was based on the class of school district in which the respondent is employed.

Tables 46 and 47 present those items on which a significant difference of opinion was found to exist between two or more groups, using class of school district as a sort factor. An examination of these two tables reveals that the class of school district in which the respondent is employed produces a greater variation of opinion regarding preferred practices in professional inservice education than

than on trade or technical inservice education. It should also be noted that most of the significant differences were found to exist between groups representing school districts which differ greatly in size.

The individual experiences of the teacher respondents did influence their opinions on what inservice education they preferred. It is apparent that some of these factors exert comparable influences, and that some are more influential to differences in trade or technical inservice education than to professional.

TABLE 46

SIGNIFICANT DIFFERENCES
ON PROFESSIONAL INSERVICE EDUCATION
BASED ON CLASS OF SCHOOL DISTRICT

	(1st class) A	(2nd class) B	(3rd class) C	(4th class) D
B	21			
C	21*	17		
D	10*,11,12	10*,11*,12*	10,11,12*,17	

TABLE 47

SIGNIFICANT DIFFERENCES
ON TRADE OR TECHNICAL INSERVICE EDUCATION
BASED ON CLASS OF SCHOOL DISTRICT

	(1st class) A	(2nd class) B	(3rd class) C	(4th class) D
B	40,41			
C	32,40	25,41		
D	44	44		

V. COMPARISON OF PRESENT AND PREFERRED PRACTICES

A. Comparison of Rankings

In order to make a comparison of present and preferred practices data will be taken from Tables 14 and 31. In comparing these two tables it may be noted that none of the ten top ranked teacher replies regarding present practices appeared in the top ten in preferred practices. In making the same comparison using administrator replies, only item 11 concerning the study and evaluation of curriculum materials was ranked in the top ten in both present and preferred practices. This indicates that both teachers and administrators feel the need for changes in inservice education practices.

A comparison of the top ten preferred practices with the lower ten present practices revealed that teachers were not participating in items 5, 25, and 26, at this time, but they would prefer to do so. Item 5 pertains to attendance at interstate professional conventions, while items 25 and 26 pertain to attendance at state, interstate, and national conventions.

The administrators have indicated that they would like their teachers to participate in items 5 and 26, which were previously identified and in item 43, which would have them teach in-plant classes in their trade or technology.

One other interesting factor to be noted in the rankings of preferred practices is that item 1 was ranked ninth by the teachers, while the administrators rank it fortieth. This item deals with the observation of other classes in the school.

B. Comparison of Differences By Population Characteristics

Eight sort factors were used in the analysis of the percentage of teacher responses in both present and preferred practices in inservice education. In the realm of present practices in professional inservice education, ten of the twenty-two items showed a significant difference in practice between two or more groups in at least four of the eight factors. Numerically these items are 4, 5, 6, 8, 11, 13, 14, 15, 16, and 21. With regard to present practices in trade or technical inservice education only three items out of twenty-two show significant differences between two or more groups in at least four of the eight sort factors. Numerically these items are 30, 40, and 41.

An examination of the tables showing preferred practices in professional inservice education revealed that only three of the twenty-two items show significant differences of opinion in at least four of the eight sort factors. Numerically these items are 13, 14, and 15. An examination of the tables showing preferred practices of trade or technical inservice education showed that a significant difference of opinion exists in at least four of the eight sort factors on six of the twenty-two items. Numerically these items are 30, 32, 40, 41, 42, and 43.

Table 48 presents the total number of different items of both present and preferred practices in both professional and trade or technical inservice education, which appeared in each of the eight sort factors. These totals include significant differences at both the five per cent and one per cent level.

TABLE 48

TOTAL NUMBER OF SIGNIFICANT DIFFERENCES IN EACH SORT FACTOR

Sort Factor	Phase of Inservice Education			
	Professional		Trade or Technical	
	Present	Preferred	Present	Preferred
Years of teaching experience	13	9	6	7
Age	12	9	8	7
Years of work experience	7	9	8	5
Years since last work experience	9	8	8	9
Period of completion of certification coursework	3	6	3	7
Undergraduate credits	9	8	5	5
Graduate credits	8	2	3	4
Class of school district	13	5	7	5

It is evident that individual experiences of the teacher population do cause significant differences of practices and of opinions concerning inservice education. Therefore rejection of the null hypothesis which assumed no influence from these factors is warranted.

C. Opinions on Adequacy of Inservice Education

It was intended that this study would be used in a constructive manner to improve the inservice education of teachers, if the data would establish that such a change was mandated. To assure that such proof would be conclusive and undisputable, Part II of the questionnaire (see Appendix B) asked specific questions about the adequacy of present practices of inservice education. The first question asked the respondents to indicate their opinion on adequacy of present professional inservice education. Two hundred twenty-six, or 79.3%, of the teacher respondents replied in the negative. The administrative respondents' opinions did not give a decisive endorsement or rejection of present practices since thirty-nine, or 51.3%, replied in the affirmative while thirty-seven, or 48.7%, replied in the negative.

The second question asked the respondents to indicate their opinion on the adequacy of present trade or technology inservice education. Sixty-three and one-half per cent (63.5%) of the teacher respondents stated that it was not adequate. The responses from the administrative group were: forty and two-tenth per cent (40.2%) expressed the opinion that this inservice education was adequate while fifty-nine and eight-tenth per cent (59.8%) felt that it was not.

The respondents were asked to make recommendations as to changes in both the professional and subject matter inservice education. Typical comments made in response to this request are listed in Appendix F.

The mandate for change in both professional or trade and technical inservice education is readily evident based on the teacher responses. This decision is not as clearly defined by the responses from the administrative group, however, the lack of a decisive endorsement of present inservice education implied that changes were desirable.

VI. SUMMARY AND CONCLUSIONS

A. Summary

The purpose of this study was to determine the inservice educational activities in which technical and industrial teachers now participate, and their opinions concerning the activities in which they would prefer to participate. It investigated both the professional inservice education and the trade or technical inservice education. A second purpose of the study was to determine whether the technical and industrial teachers are of the opinion that existing inservice education has been satisfying their needs as teachers. It consisted of determining: (1) whether technical and industrial laboratory or shop teachers do participate in professional and subject matter inservice education; (2) whether individual experiences such as age, years of or recency of work experience, years of teaching experience, type and recency of professional preparation influence the teacher's opinions of inservice education; (3) whether the teachers and supervisors are of the opinion that more subject matter inservice education is necessary.

The investigation began by identifying inservice education activities by searching publications, review of related researches and interviews with teachers, supervisors, and administrators. The most prevalent activities were compiled into a check-list and validated by a pilot study.

The reliability of the check-list was established by correlating the returns from the administrators and supervisors with the returns from the teachers. A high index of relationship and consistency was evidenced.

The check-list was sent to 525 shop and laboratory teachers. Returns were received from 311 individuals; 285 of the returned check-lists were used in this study. The same instrument, with minor changes in directions, was sent to 121 administrators. Returns were received from 91 administrators and all were used in the study.

The returns from the teachers were used to determine their present and preferred inservice education activities, the influence of their individual experience on the practices, and their opinions about present professional and subject matter inservice education. The responses from the administrators established their preference of present and preferred practices and their opinions about the adequacy of present inservice education.

B. Conclusions and Interpretations

The findings of this study are the bases of the following conclusions and interpretations:

1. The majority of the course offerings in Pennsylvania are trade oriented rather than technical.
2. Degree holders are a minority in the teacher population but a majority in the administrative population.
3. The years of trade or technical experience was higher for the teacher population than for the administrative population.
4. Teachers participated in as much professional inservice education as they did in subject matter inservice education.
5. Years of teaching experience, years of age, years since last employed at trade or technology, professional preparation, and class of school district in which employed caused more significant differences in present practices in professional inservice education than in subject matter inservice education.

6. Years of work experience in a trade or technology caused more significant differences in present practices in subject matter rather than in professional inservice education.

7. Years of teaching experience, years of age, years of work experience in a trade or technology, and class of school district in which employed caused more significant differences in preferred practices in professional inservice education than in subject matter inservice education.

8. Professional preparation and recency of work experience caused more significant differences in preferred practices in subject matter than in professional inservice education.

9. The chronological period during which professional requirements of certification were completed was not a critical measure in this study.

10. Both teachers and administrators were of the opinion that inservice education needs to be increased.

11. There was less unaminity among the teacher population in present and preferred inservice education in professional than in subject matter activities.

12. There was a more pronounced dissatisfaction with present practices of inservice education in the teacher population than in the administrative population.

C. Recommendations

The following implications of application are relevant to Pennsylvania based on this study:

1. Inservice education activities in both the professional and subject matter catagory should be increased.

2. Teachers should be involved in choosing, planning, and executing their inservice education activities.

3. Planners of inservice education should be cognizant of personal experiences of teachers and their effect on the program.

The implications for additional research are:

1. What characteristics of trade or technology experiences affect the teacher's opinions on inservice education?

2. How do the opinions on inservice education of trade and technical teachers compare with the entire teacher population?

3. How will increased preparatory education affect inservice education of trade and technical teachers?

4. What public school administrative policies should be affected so that inservice education offerings can be more extensive?

5. What is the extent of differences of inservice education in the various size school districts?

APPENDICES

Appendix A

Dear Sir:

The inservice education of trade and technology teachers in Pennsylvania varies from one school district to another. The intent of these inservice education activities is to improve the instruction for the children of our society. I plan to identify those activities that are most widely used and to obtain the opinions of teachers and administrators as to their preference of activities.

I contemplate sending to each trade and technology shop teacher and their administrators in Pennsylvania, an opinionnaire to get this information. A copy of the first draft of this opinionnaire is attached. I am seeking your professional advice and assistance to:

1. Check each statement for clarity of expression.
2. Review each inservice education activity to determine if it is a legitimate activity to improve instruction.
3. Add any inservice education activity, which you feel is necessary, to the listing.

The final listing will be completed after I have received your comments. The final draft will be sent to teachers and administrators.

I will appreciate it if you will return the opinionnaire, with your comments, to me at your earliest convenience.

Yours truly,

S. T. Brantner
Associate Professor
Industrial Education

STB:bah

Enclosure

PROFESSIONAL AND SUBJECT MATTER INSERVICE EDUCATIONAL ACTIVITIES

DIRECTIONS: Following are two lists of inservice educational activities which are used in school districts to improve teaching. One list includes only professional inservice educational activities. The other list includes subject matter, i.e. trade or technology, inservice educational activities. Please indicate by marking (X) under:

1. Column A -- Whether you have used this type of inservice activity, for the teachers you supervise, at least once within the last three years by checking Yes. If you have not used it check No.
2. Column B -- Whether you would use this type of inservice activity, for the teachers you supervise, by checking Yes. If you would not use it check No.

In the space provided at the end of the trade or technical list, write any additional activities which you think should be included in either listing. There are three parts to the questionnaire.

Part I

Professional Inservice Education

Column A Do You Yes	 No			Column B Would You Yes	 No
☐	☐	1.	Observe other classes within your school.	☐	☐
☐	☐	2.	Observe classes outside your school.	☐	☐
☐	☐	3.	Attend school district or county institute.	☐	☐
☐	☐	4.	Attend national professional conventions.	☐	☐
☐	☐	5.	Attend interstate professional conventions.	☐	☐
☐	☐	6.	Attend state or intrastate professional conventions.	☐	☐
☐	☐	7.	Attend all-school faculty meetings.	☐	☐
☐	☐	8.	Attend department faculty meetings.	☐	☐
☐	☐	9.	Attend shop faculty meetings.	☐	☐
☐	☐	10.	Participate in curriculum revision.	☐	☐
☐	☐	11.	Study and evaluate curriculum materials.	☐	☐
☐	☐	12.	Evaluate and select textbooks.	☐	☐
☐	☐	13.	Complete general education extension courses.	☐	☐

Part I

Professional Inservice Education

Column A				Column B	
Do You				Would You	
Yes	No			Yes	No
( )	( )	14.	Complete professional education extension courses.	( )	( )
( )	( )	15.	Complete professional vocational education extension courses.	( )	( )
( )	( )	16.	Complete requirements for a professional degree.	( )	( )
( )	( )	17.	Participate in professional workshops.	( )	( )
( )	( )	18.	Participate in teacher-supervisor conferences.	( )	( )
( )	( )	19.	Read professional magazines and journals.	( )	( )
( )	( )	20.	Read professional books.	( )	( )
( )	( )	21.	Write articles for professional publications.	( )	( )
( )	( )	22.	Participate in educational research.	( )	( )

Trade or Technical Inservice Education

Column A				Column B	
Do you				Would You	
Yes	No			Yes	No
( )	( )	1.	Observe tradesmen or technicians on-the-job.	( )	( )
( )	( )	2.	Observe workers in your trade or technology on-the-job.	( )	( )
( )	( )	3.	Attend national trade or technology conventions.	( )	( )
( )	( )	4.	Attend state or interstate trade or technology conventions.	( )	( )
( )	( )	5.	Attend local trade or technology meetings.	( )	( )
( )	( )	6.	Visit industrial exhibits.	( )	( )
( )	( )	7.	Visit manufacturers exhibits.	( )	( )
( )	( )	8.	Work part-time for wages at your trade or technology.	( )	( )
( )	( )	9.	Work part-time at your trade or technology but not for wages.	( )	( )
( )	( )	10.	Attend workshops in your trade or technology.	( )	( )
( )	( )	11.	Read trade or technology magazines and journals.	( )	( )

PROFESSIONAL AND SUBJECT MATTER INSERVICE EDUCATIONAL ACTIVITIES

DIRECTIONS: Following are two lists of inservice educational activities which are used in school districts to improve teaching. One list includes only professional inservice educational activities. The other list includes subject matter, i.e. your trade or technology, inservice educational activities. Please indicate by marking (X) under:

1. Column A -- Whether you have participated in this type of inservice activity at least once within the last three years, in addition to teaching full-time, by checking Yes or have not participated by checking No.
2. Column B -- Whether you would participate in this type of inservice activity if it was available, while retaining your teaching position, by checking Yes or would not participate by checking No.

In the space provided at the end of the trade or technical list, write any additional activities which you think should be included in either listing. There are three parts to the questionnaire.

Part I

Professional Inservice Education

Column A				Column B	
Do You				Would You	
Yes	No			Yes	No
( )	( )	1.	Observe other classes within your school.	( )	( )
( )	( )	2.	Observe classes outside your school.	( )	( )
( )	( )	3.	Attend school district or county institute.	( )	( )
( )	( )	4.	Attend national professional conventions.	( )	( )
( )	( )	5.	Attend interstate professional conventions.	( )	( )
( )	( )	6.	Attend state or intrastate professional conventions.	( )	( )
( )	( )	7.	Attend all-school faculty meetings.	( )	( )
( )	( )	8.	Attend department faculty meetings.	( )	( )
( )	( )	9.	Attend shop faculty meetings.	( )	( )
( )	( )	10.	Participate in curriculum revision.	( )	( )
( )	( )	11.	Study and evaluate curriculum materials.	( )	( )
( )	( )	12.	Evaluate and select textbooks.	( )	( )
( )	( )	13.	Complete general education extension courses.	( )	( )

Part I

Professional Inservice Education

Column A				Column B	
Do You				Would You	
Yes	No			Yes	No
( )	( )	14.	Complete professional education extension courses.	( )	( )
( )	( )	15.	Complete professional vocational education extension courses.	( )	( )
( )	( )	16.	Complete requirements for a professional degree.	( )	( )
( )	( )	17.	Participate in professional workshops.	( )	( )
( )	( )	18.	Participate in teacher-supervisor conferences.	( )	( )
( )	( )	19.	Read professional magazines and journals.	( )	( )
( )	( )	20.	Read professional books.	( )	( )
( )	( )	21.	Write articles for professional publications.	( )	( )
( )	( )	22.	Participate in educational research.	( )	( )

Trade or Technical Inservice Education

Column A				Column B	
Do you				Would You	
Yes	No			Yes	No
( )	( )	1.	Observe tradesmen or technicians on-the-job.	( )	( )
( )	( )	2.	Observe workers in your trade or technology on-the-job.	( )	( )
( )	( )	3.	Attend national trade or technology conventions.	( )	( )
( )	( )	4.	Attend state or interstate trade or technology conventions.	( )	( )
( )	( )	5.	Attend local trade or technology meetings.	( )	( )
( )	( )	6.	Visit industrial exhibits.	( )	( )
( )	( )	7.	Visit manufacturers exhibits.	( )	( )
( )	( )	8.	Work part-time for wages at your trade or technology.	( )	( )
( )	( )	9.	Work part-time at your trade or technology but not for wages.	( )	( )
( )	( )	10.	Attend workshops in your trade or technology.	( )	( )
( )	( )	11.	Read trade or technology magazines and journals.	( )	( )

Column A				Column B	
Do You			**Trade or Technical Inservice Education**	**Would You**	
Yes	No			Yes	No
( )	( )	12.	Read trade or technology books.	( )	( )
( )	( )	13.	Read specifications of new equipment used in your trade or technology.	( )	( )
( )	( )	14.	Read specifications of new tools used in your trade or technology.	( )	( )
( )	( )	15.	Read about new processes and techniques in your trade or technology.	( )	( )
( )	( )	16.	Discuss your trade or technology with employers.	( )	( )
( )	( )	17.	Participate in seminars with tradesmen or technicians.	( )	( )
( )	( )	18.	Write articles for trade or technology publications.	( )	( )
( )	( )	19.	Serve as a consultant in your trade or technology.	( )	( )
( )	( )	20.	Have an advisory committee for your trade or technology.	( )	( )
( )	( )	21.	Teach in-plant classes in your trade or technology.	( )	( )
( )	( )	22.	Teach apprenticeship related training classes in your trade or technology.		

Additional activities which you would include.

Part II

1. Do you feel that the present professional inservice education is adequate?

_______________ Yes _______________ No

If No what changes would you recommend?

2. Do you feel that the present trade or technology inservice education is adequate?

_______________ Yes _______________ No

If No what changes would you recommend?

Part III

Personal Data

Directions: Please use a check mark to indicate your answers to the following questions.

1. Educational position?

a. _____ Shop or laboratory teacher
b. _____ Vocational director or principal
c. _____ Vocational supervisor
d. _____ Vocational coordinator
e. _____ Other _______________(specify)

2. Subject (s) teaching at present

____

____

3. Years of teaching experience?

a. _____0-4 d. _____15-19
b. _____5-9 e. _____20-24
c. _____10-14 f. _____25 or more

4. Kind of certificate you hold?

a. _____ Emergency
b. _____ Interim standard
c. _____ Temporary standard
d. _____ Permanent standard
e. _____ College provisional
f. _____ College permanent
g. _____ Other____________(specify)

5. Your age?

a. _____25 or under d. _____42-49
b. _____26-33 e. _____50-57
c. _____34-41 f. _____58 or over

6. Years of work experience in your trade or technology?

a. _____ 3-4 d. _____ 9-10
b. _____ 5-6 e. _____ 11-12
c. _____ 7-8 f. _____ 13 or more

7. When did you last work at your trade as a wage earner?

a. _____ Less than a year ago
b. _____ 1-5 years ago
c. _____ 6-10 years ago
d. _____ 11-20 years ago
e. _____ Over 20 years ago

8. Period in which you completed the major part of your teacher certification coursework?

a. _____ prior to 1937
b. _____ 1938 to August 31, 1959
c. _____since September 1, 1959

9. Number of undergraduate college credits completed?

a. _____ 0-12
b. _____ 13-60
c. _____ 61-90
d. _____ 91-120
e. _____ Bachelor's Degree

10. Number of graduate college credits completed?

a. _____ 0
b. _____ 1-30
c. _____ 31-90
d. _____ Master's Degree
e. _____ Doctor's Degree

11. What is the classification of your school district?

a. _____ 1st class
b. _____ 2nd class
c. _____ 3rd class
d. _____ 4th class

THE PENNSYLVANIA STATE UNIVERSITY
UNIVERSITY PARK • PENNSYLVANIA

College of Education
Department of Industrial Education
Burrowes Building

Dear Fellow Educator:

The inservice education of trade and technology teachers in Pennsylvania varies between school districts. The intent of these inservice education activities is to improve the instruction. It is my purpose to identify those activities most prevalent in use and to obtain opinions from teachers and administrators as to their preference of activities.

A check list for obtaining your opinions is enclosed. The entire list can be completed in approximately twenty minutes. The contribution that you can make by completing this form will be very helpful and important. It is not necessary that you identify yourself by name or location on the form.

I will appreciate it if you will return the check list, in the envelope provided, at your earliest convenience.

Yours truly,

S. T. Brantner
Associate Professor
Vocational Education

STB:lld

Enclosure

APPENDIX D

RANKING OF YES RESPONSES
PRESENT PRACTICES
TEACHERS

Rank	Item No.	Item wording	f	%
1	37	Read about new processes and techniques in your trade or technology.	275	96.49
2	36	Read specifications of new tools used in your trade or technology.	272	95.44
3	19	Read professional magazines and journals.	270	94.74
4	33	Read trade or technology magazines and journals.	269	94.71
5	35	Read specifications of new equipment used in your trade or technology.	269	94.38
6	34	Read trade or technology books.	268	94.04
7	7	Attend all-school faculty meetings.	264	92.63
8	20	Read professional books.	258	90.52
9	8	Attend department faculty meetings.	256	90.14
10	9	Attend shop faculty meetings.	247	86.97
11	28	Visit industrial exhibits.	231	81.05
12	12	Evaluate and select textbooks.	222	77.89
13	24	Observe workers in your trade or technology on-the-job.	216	75.79
14	29	Visit manufacturers exhibits.	216	75.79
15	38	Discuss your trade or technology with employers.	213	74.74
16	23	Observe tradesmen or technicians on-the-job.	211	74.04
17	11	Study and evaluate curriculum materials.	203	71.23
18	3	Attend school district or county institute.	186	65.26

Rank	Item No.	Item Wording	f	%
19	10	Participate in curriculum revision.	186	65.26
20	15	Complete professional vocational education extension courses.	183	64.21
21	30	Work part-time for wages at your trade or technology.	176	61.75
22	13	Complete general education extension courses.	160	56.14
23	14	Complete professional education extension courses.	153	53.68
24	17	Participate in professional workshops.	145	50.88
25	27	Attend local trade or technology meetings.	145	50.88
26	32	Attend workshops in your trade or technology.	130	45.61
27	18	Participate in teacher-supervisor conferences.	125	43.86
28	1	Observe other classes within your school.	119	41.75
29	2	Observe classes outside your school.	108	37.89
30	16	Complete requirements for a professional degree.	108	37.89
31	44	Teach apprenticeship related training classes in your trade or technology.	105	36.97
32	41	Serve as a consultant in your trade or technology.	98	34.38
33	42	Have an advisory committee for your trade or technology.	94	32.98
34	39	Participate in seminars with tradesmen or technicians.	88	30.88
35	6	Attend state or intrastate professional conventions.	70	24.56
36	22	Participate in educational research.	69	24.21
37	31	Work part-time at your trade or technology but not for wages.	55	19.30

Rank	Item No.	Item Wording	f	%
38	25	Attend national trade or technology conventions.	52	18.24
39	26	Attend state or interstate trade or technology conventions.	48	16.84
40	43	Teach in-plant classes in your trade or technology.	48	16.84
41	5	Attend interstate professional conventions.	38	13.33
42	21	Write articles for professional publications.	38	13.33
43	4	Attend national professional conventions.	37	12.98
44	40	Write articles for trade or technology publications.	23	8.07

RANKING OF YES RESPONSES
PRESENT PRACTICES
ADMINISTRATORS

Rank	Item No.	Item Wording	f	%
1	37	Read about new processes and techniques in your trade or technology.	88	96.71
2	19	Read professional magazines and journals.	87	95.60
3	36	Read specifications of new tools used in your trade or technology.	87	95.60
4	35	Read specifications of new equipment used in your trade or technology.	86	94.51
5	9	Attend shop faculty meetings.	85	93.41
6	10	Participate in curriculum revision.	85	93.41
7	28	Visit industrial exhibits.	85	93.41
8	34	Read trade or technology books.	84	92.13
9	8	Attend department faculty meetings.	83	91.21
10	11	Study and evaluate curriculum materials.	83	91.21
11	7	Attend all-school faculty meetings.	82	90.11
12	20	Read professional books.	82	90.11
13	33	Read trade or technology magazines and journals.	82	90.11
14	29	Visit manufacturers exhibits.	81	89.01
15	38	Discuss your trade or technology with employers.	81	89.01
16	23	Observe tradesmen or technicians on-the-job.	79	86.81
17	18	Participate in teacher-supervisor conferences.	77	84.62
18	24	Observe workers in your trade or technology on-the-job.	77	84.62

Rank	Item No.	Item Wording	f	%
19	12	Evaluate and select textbooks.	75	82.42
20	3	Attend school district or county institute.	74	81.32
21	17	Participate in professional workshops.	71	78.02
22	1	Observe other classes within your school.	70	76.92
23	15	Complete professional vocational education extension courses.	68	74.73
24	2	Observe classes outside your school.	67	73.63
25	42	Have an advisory committee for your trade or technology.	66	72.53
26	16	Complete requirements for a professional degree.	62	68.13
27	6	Attend state or intrastate professional conventions.	61	67.03
28	14	Complete professional education extension courses.	61	67.03
29	13	Complete general education extension courses.	59	64.84
30	27	Attend local trade or technology meetings.	58	63.74
31	32	Attend workshops in your trade or technology.	58	63.74
32	4	Attend national professional conventions.	50	54.94
33	41	Serve as a consultant in your trade or technology.	48	52.75
34	39	Participate in seminars with tradesmen or technicians.	45	49.45
35	30	Work part-time for wages at your trade or technology.	41	45.05
36	44	Teach apprenticeship related training classes in your trade or technology.	40	43.96
37	5	Attend interstate professional conventions.	39	42.86

Rank	Item No.	Item Wording	f	%
38	22	Participate in educational research.	39	42.86
39	43	Teach in-plant classes in your trade or technology.	33	36.26
40	25	Attend national trade or technology conventions.	32	35.16
41	26	Attend state or interstate trade or technology conventions.	31	34.07
42	21	Write articles for professional publications.	27	29.67
43	40	Write articles for trade or technology publications.	19	20.88
44	31	Work part-time at your trade or technology but not for wages.	10	10.99

APPENDIX E

RANKING OF YES RESPONSES
PREFERRED PRACTICES
TEACHERS

Rank	Item No.	Item Wording	f	%
1	2	Observe classes outside your school.	213	74.74
2	39	Participate in seminars with tradesmen or technicians.	202	70.88
3	25	Attend national or technology conventions.	200	70.18
4	26	Attend state or interstate trade or technology conventions.	199	69.82
5	5	Attend interstate professional conventions.	193	67.72
6	41	Serve as a consultant in your trade or technology.	193	67.72
7	42	Have an advisory committee for your trade or technology.	193	67.72
8	27	Attend local trade or technology meetings.	188	65.96
9	1	Observe other classes within your school.	186	65.26
10	10	Participate in curriculum revision.	181	63.51
11	6	Attend state or intrastate professional conventions.	180	63.16
12	32	Attend workshops in your trade or technology.	180	63.16
13	43	Teach in-plant classes in your trade or technology.	180	63.16
14	12	Evaluate and select textbooks.	174	61.05
15	4	Attend national professional conventions.	172	60.35
16	24	Observe workers in your trade or technology on-the-job.	172	60.35

Rank	Item No.	Item Wording	f	%
17	23	Observe tradesmen or technicians on-the-job.	171	60.00
18	11	Study and evaluate curriculum materials.	170	59.65
19	38	Discuss your trade or technology with employers.	169	59.30
20	9	Attend shop faculty meetings.	168	59.15
21	22	Participate in educational research.	168	58.95
22	18	Participate in teacher-supervisor conferences.	165	57.89
23	29	Visit manufacturers exhibits.	164	57.54
24	28	Visit industrial exhibits.	163	57.19
25	17	Participate in professional workshops.	162	56.84
26	8	Attend department faculty meetings.	161	56.69
27	3	Attend school district or county institute.	153	53.68
28	35	Read specifications of new equipment used in your trade or technology.	152	53.33
29	36	Read specifications of new tools used in your trade or technology.	150	52.63
30	37	Read about new processes and techniques in your trade or technology.	150	52.63
31	15	Complete professional vocational education extension courses.	149	52.28
32	33	Read trade or technology magazines and journals.	148	52.11
33	7	Attend all-school faculty meetings.	148	51.93
34	19	Read professional magazines and journals.	148	51.93
35	34	Read trade or technology books.	148	51.93
36	20	Read professional books.	144	50.53

Rank	Item No.	Item Wording	f	%
37	13	Complete general education extension courses.	138	48.42
38	30	Work part-time for wages at your trade or technology.	137	48.07
39	14	Complete professional education extension courses.	133	46.67
40	16	Complete requirements for a professional degree	130	45.61
41	40	Write articles for trade or technology publications.	107	37.54
42	21	Write articles for professional publications.	105	36.84
43	44	Teach apprenticeship related training classes in your trade or technology.	48	16.90
44	31	Work part-time at your trade or technology but not for wages.	45	15.79

RANKING OF YES RESPONSES
PREFERRED PRACTICES
ADMINISTRATORS

Rank	Item No.	Item Wording	f	%
1	22	Participate in educational research.	68	74.73
2	5	Attend interstate professional conventions.	67	73.63
3	39	Participate in seminars with tradesmen or technicians.	67	73.63
4	26	Attend state or interstate trade or technology conventions.	66	72.53
5	43	Teach in-plant classes in your trade or technology.	66	72.53
6	2	Observe classes outside your school.	64	70.33
7	41	Serve as a consultant in your trade or technology.	64	70.33
8	27	Attend local trade or technology meetings.	63	69.23
9	6	Attend state or intrastate professional conventions.	62	68.13
10	11	Study and evaluate curriculum materials.	62	68.13
11	8	Attend department faculty meetings.	61	67.03
12	21	Write articles for professional publications.	61	67.03
13	4	Attend national professional conventions.	60	65.93
14	10	Participate in curriculum revision.	60	65.93
15	12	Evaluate and select textbooks.	60	65.93
16	16	Complete requirements for a professional degree.	60	65.93
17	42	Have an advisory committee for your trade or technology.	60	65.93
18	9	Attend shop faculty meetings.	59	64.84

Rank	Item No.	Item Wording	f	%
19	17	Participate in professional workshops.	59	64.84
20	23	Observe tradesmen or technicians on-the-job.	59	64.84
21	24	Observe workers in your trade or technology on-the-job.	59	64.84
22	25	Attend national trade or technology conventions.	59	64.84
23	32	Attend workshops in your trade or technology.	59	64.84
24	40	Write articles for trade or technology publications.	59	64.84
25	7	Attend all-school faculty meetings.	58	63.74
26	38	Discuss your trade or technology with employers.	58	63.74
27	28	Visit industrial exhibits.	57	62.64
28	29	Visit manufacturers exhibits.	57	62.64
29	33	Read trade or technology magazines and journals.	57	62.64
30	35	Read specifications of new equipment used in your trade or technology.	57	62.64
31	36	Read specifications of new tools used in your trade or technology.	57	62.64
32	19	Read professional magazines and journals.	56	61.54
33	37	Read about new processes and techniques in your trade or technology.	56	61.54
34	3	Attend school district or county institute.	55	60.44
35	14	Complete professional education extension courses.	55	60.44
36	15	Complete professional vocational education extension courses.	55	60.44
37	18	Participate in teacher-supervisor conferences.	55	60.44

Rank	Item No.	Item Wording	f	%
38	34	Read trade or technology books.	55	60.44
39	20	Read professional books.	54	59.34
40	1	Observe other classes within your school.	52	57.14
41	13	Complete general education extension courses.	52	57.14
42	30	Work part-time for wages at your trade or technology.	48	52.75
43	31	Work part-time at your trade or technology but not for wages.	26	28.57
44	44	Teach apprenticeship related training classes in your trade or technology.	25	27.47

APPENDIX F

SUGGESTIONS FOR IMPROVING INSERVICE EDUCATION

A. Administrators

The most common recommendation was that arrangements should be made to enable teachers to keep in closer contact with industry in order to keep up with our rapidly changing technology. There were many suggestions made as to how to do this and they are listed below:

1. Bring in experts from industry to teach inservice courses.
2. Require teachers to work at their trade during summer months, and give college credits for this experience.
3. Provide more time for visits to industrial concerns.
4. Arrange group meetings and seminars within each trade.
5. Offer advanced laboratory courses.
6. Teachers should join trade organizations and associations.
7. Set up advisory committees with members from local industry.

Other suggestions for improving the trade or technology inservice education program made by administrators include the following.

1. Experienced teachers should prepare materials for new teachers.
2. Improve safety education program.
3. Increase certification requirements.
4. Hold state-wide meetings for each trade and make attendance mandatory.

Suggestions regarding ways to improve professional inservice education were also made by administrators, and these suggestions are listed below.

1. Hold more workshops and seminars.
2. Require more courses for B.S. degree.
3. Hold more classes evenings and Saturdays.
4. Add courses in class control and discipline.
5. Add more courses in Philosophy of Education and Techniques of Teaching.

6. Provide more time off to attend state and national meetings.
7. Encourage more membership and participation in professional organizations.
8. Provide more emphasis on curriculum organization and materials.

In addition to suggesting ways of improving specific types of inservice education the administrators also made the general suggestions listed below.

1. Greater follow-up of ideas developed in both trade and professional meetings.
2. Make extension courses more widely available to cut down travel distance.
3. Improve sequential arrangement of course offerings.
4. School district should pay expenses for those attending meetings.
5. Hold more meetings between supervisors and administrators at the local and state level.
6. Encourage revision of income tax laws to allow more educational deductions.

B. Teachers

As was the case with administrators, the suggestion most frequently made by teachers was to improve contact with industry to keep up with new methods and techniques. Specific ways of doing this, as suggested by teachers, are listed below.

1. Give college credit for trade or technology courses offered by industry.
2. Encourage industry to offer more courses.
3. Offer courses in more locations and at more convenient times.
4. School districts should provide time off to attend trade or technology meetings.
5. Hold more workshops and seminars.
6. Require teachers to have more knowledge of other trades.
7. Require teachers to work at their trade or technology periodically.
8. Bring in experts from industry to teach courses.

The suggestions for improving professional education listed below were also made by teachers.

1. Provide more time off to attend professional meetings.
2. Provide extension courses in foreign languages.
3. Provide more extension courses leading to B.S. degree.
4. Provide time for visiting other classes in different subjects.

The general suggestions for improving inservice education, made by teachers, were as follows:

1. Make graduate courses tuition free.
2. Teacher trainers should be required to teach high school courses in public schools at least one semester every five years.
3. Offer extension courses in more locations to cut down travel distance.
4. Encourage more teachers to write articles for publication.
5. Provide more opportunity for interchange of ideas between teachers.

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